

Operations Manual



HUMMINBIRD

HDR200

TRANSDUCER MOUNTING PROCEDURE

Humminbird's high-speed transducer is supplied with your LCR. This transducer has been designed to give good high speed readings on most all boat designs, including aluminum.

Please carefully consider the following before installing your transducer.

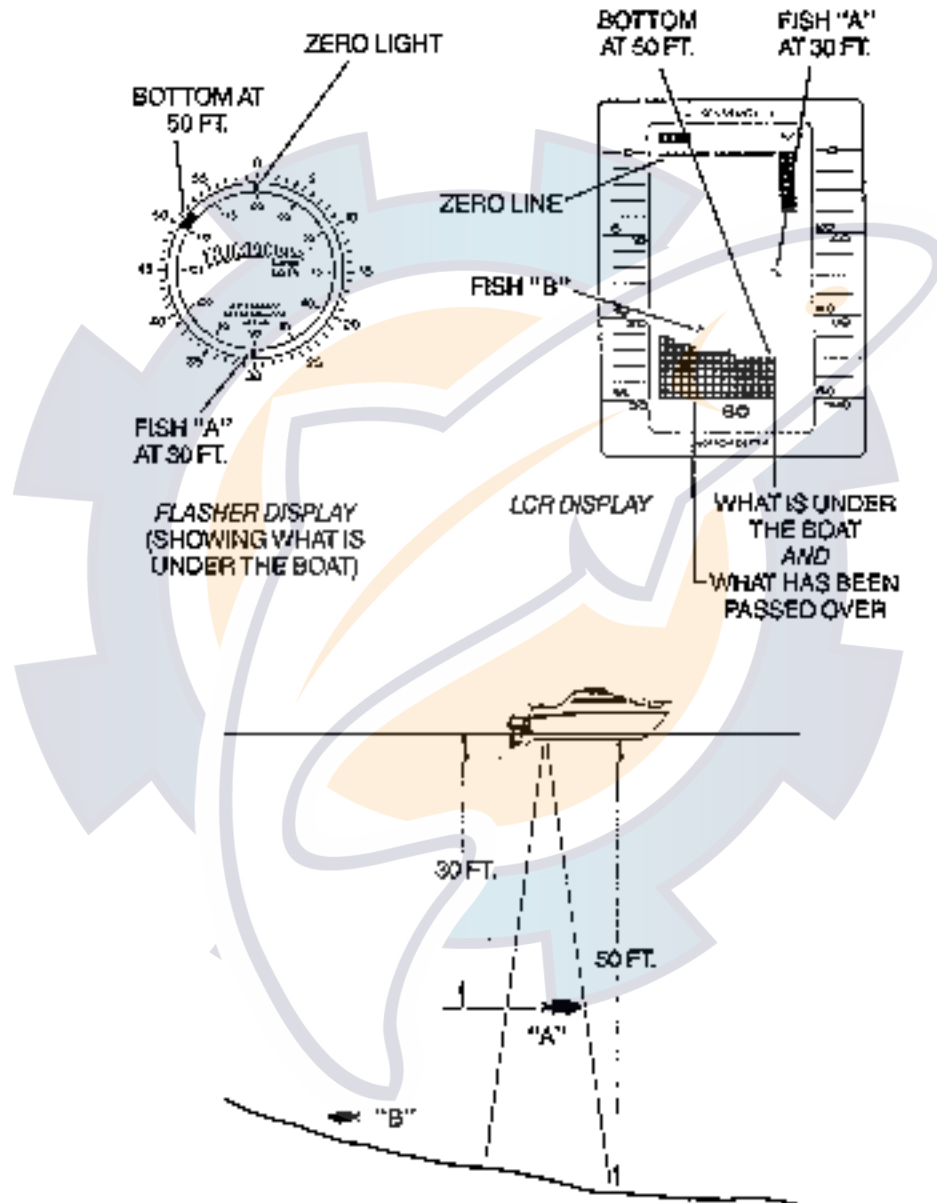


FIGURE 1

TRANSDUCER MOUNTING OPTIONS

- A. Transom Mount- The Humminbird high speed transducer allows the transducer element to be mounted below the bottom of the boat hull keeping the transducer out of turbulent water and insuring good high speed operation. The transducer will absorb the blow of any obstruction

by rotating up out of the metal spring bracket without harming the transducer, or your boat. The transducer can be re-engaged by simply rotating the transducer down and snapping it back in place. (See Figure A)

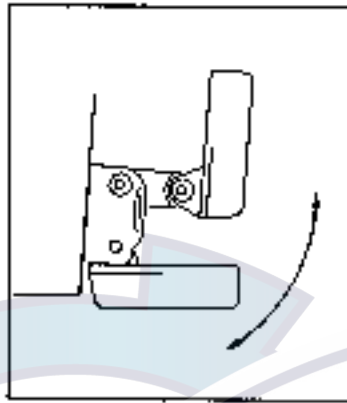


Figure A

- B. Inside Hull Mount- The high speed transducer can be mounted inside the hull (without pivot assembly) using the proper two-part epoxy, such as Humminbird's epoxy kit. Even though there is some loss of signal in shooting through the hull, your LCR will perform well with this type of installation. You cannot shoot through the hull of an aluminum boat.
- C. Trolling motor Mount- This type of transducer is not supplied with your LCR. It is designed to mount on the foot of a trolling motor. You may exchange your un-used high speed transducer for a trolling motor transducer. Call the Humminbird Customer Service Department.
- D. Bronz Thru-Hull Mount- This transducer is not supplied with your LCR but for an additional cost you may exchange your un-used high speed transducer for a bronz thru-hull. The bronz thru-hull transducer has a threaded stem which installs through a hole drilled in the boat hull, leaving the housing exposed under the boat. This type of installation must be used for many boats with in-board engines, because there is no suitable location on the transom away from the noise and turbulence created by the prop. A bronz thru-hull transducer should be installed by qualified personnel only.
The LCR will operate well at high speeds with a properly mounted transducer. Remember, a transducer will not work transmitting through air or through air bubbles.

1. TRANSOM MOUNTING PROCEDURE

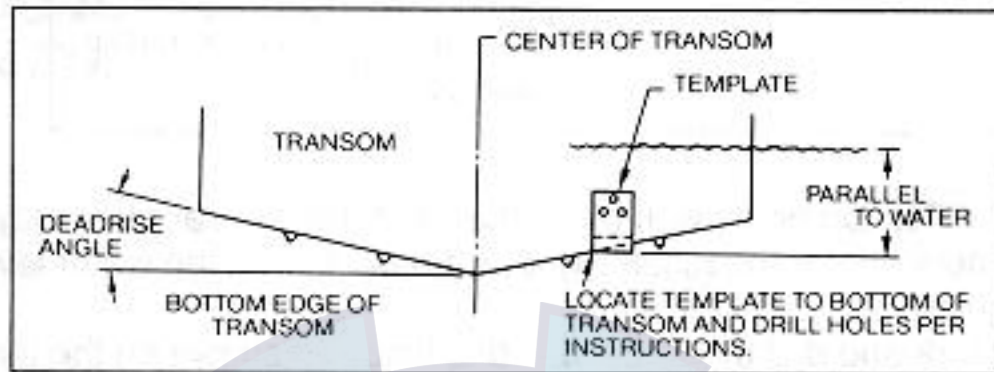
Step 1.

MOUNTING LOCATION- It is important that the transducer be mounted on the transom where water flow is in constant contact with the transducer. You may wish to observe the rear of the boat while it is moving through the water to determine the best mounting location.

Step 2.

BRACKET INSTALLATION (Aluminum Boats)- To install the metal bracket on an aluminum boat locate the template on the transom between rows of rivets, or ribs that are on the bottom of the boat. Align the template so that the bottom corner of the template nearest the center of the transom is on the bottom edge of the transom.

Figure B



Once the location is determined mark and drill three 7/64" dia.. holes noted on the template. Attach the metal bracket using three #10 self threading screws supplied. Be sure to align holes in the center of the Bracket slots. On some aluminum boats it may be necessary to use a wood back-up plate. It is important to use a silicone sealant between the screwhead and bracket in order to prevent leaking. (See Figure C)

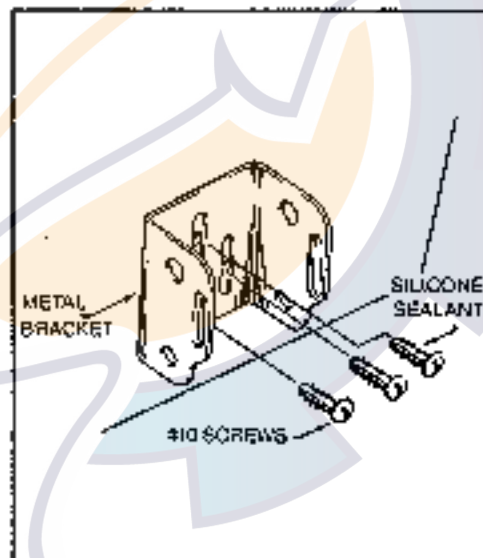
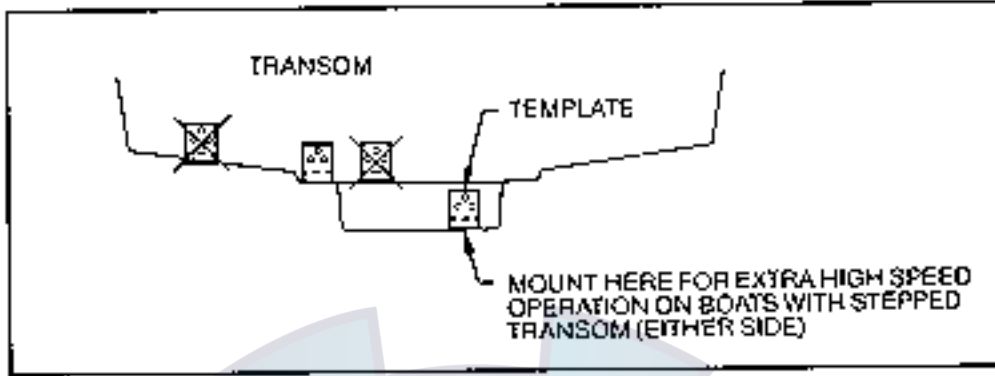


Figure C

Step 2.
BRACKET INSTALLATION (Fiberglass Boats)- If your boat has a stepped transom located below and under the main transom, the compact transducer design allows mounting in this area. This mounting location is recommended for good reading at very high speeds. (See Figure D)

To install the metal bracket on a fiberglass boat, locate the template on the transom in the same manner as for an aluminum boat. (See Figure C)

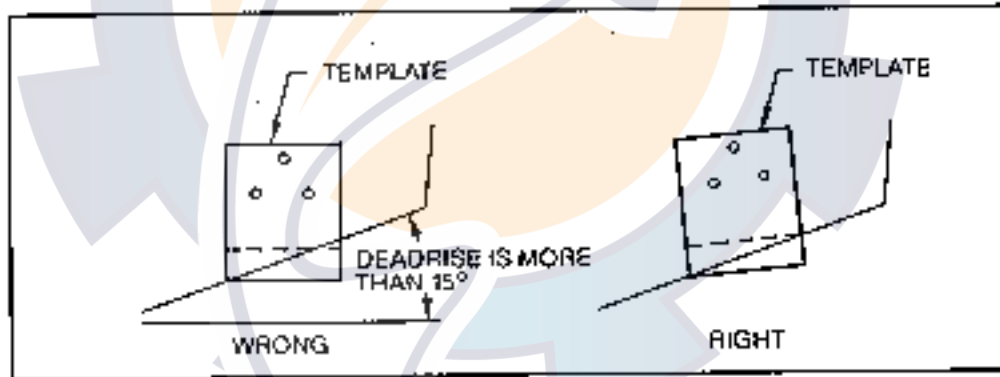
Figure D



NOTE: On boats with more than 15 degree deadrise angle it may be necessary to mount the transducer slightly off parallel with the water level. (See Figure E)

Mark and drill the three 9/64" dia. holes as shown on the template. Attach the metal bracket using the three #10 self threading screws supplied. Be sure to align the holes so that they are centered vertically in the three slots found in the bracket. It is important to use a silicone sealant between the screwhead and bracket in order to prevent leaking.

Figure E



Step 3.

TRANSDUCER PIVOT ASSEMBLY- Assemble the pivot to the transducer main body using the two 1/4"x5/8" allen head screws, two 3/8" tooth washers and two, 1/4" square nuts. Make sure the tooth washers are sandwiched between the transducer main body and the pivot. The square nuts are trapped inside the pivot and will not rotate as the allen head screws are tightened. **HOWEVER, DO NOT TIGHTEN AT THIS POINT.** (See Figure F)

CAUTION: DO NOT APPLY LOCTITE® OR SIMILAR LOCKING COMPOUNDS BECAUSE THEY WILL ATTACK THE PLASTIC.

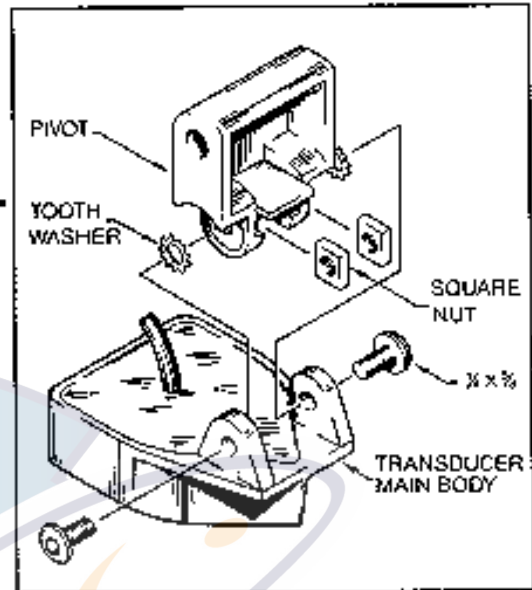


Figure F

Step 4
TRANSUCER ASSEMBLY- Insert the transducer assembly into the metal bracket from the bottom. Push up until the holes in the plastic pivot align with the uppermost holes in the bracket. Slide the O-ring on to the headed pin and insert it through the two parts. Assemble by screwing the 1/4"x3/8" allen head screw into the end of the pin and tighten. (See Figure G)

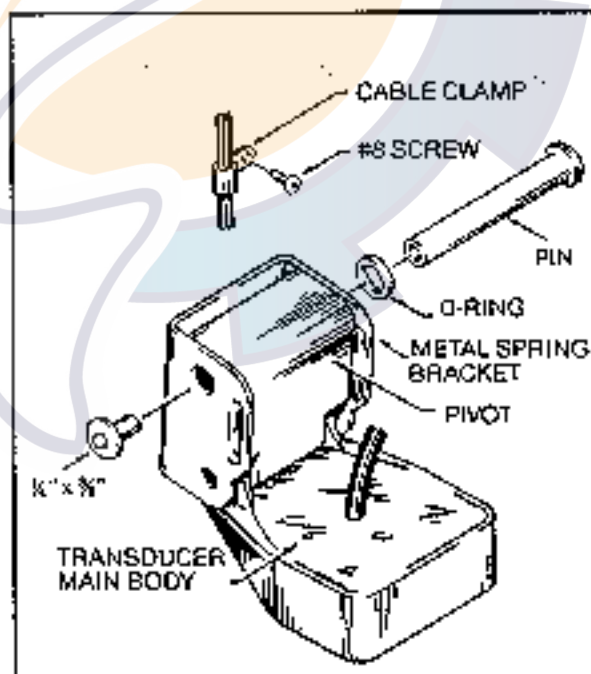
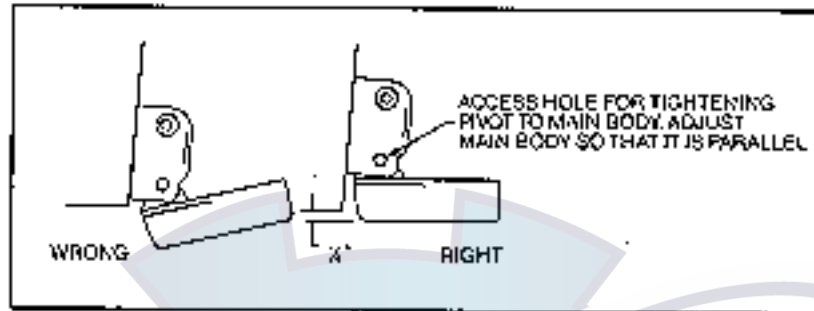


Figure G

Step 5
ANGLE ALLIGHMENT- Set the transducer angle so that it is parallel with the bottom of the boat hull. Once proper alignment is achieved, tighten the two allen head screws using the 5/32" allen

wrench provided. The screws are visible through the access holes on each side of the metal bracket. Check to make sure the transducer main body is rigidly fastened to the pivot. (See Figure H)

Figure H



Step 6

CHECK POSITION OF TRANSDUCER- At this point, check to see that the bottom of the transducer is a minimum of $\frac{1}{4}$ " below the bottom of the transom. (However, as noted in STEP 2, the top of the transducer cannot fall below the bottom of the transom). If it is not, remove the transducer assembly from the metal bracket by removing the pin installed during STEP 3. Loosen the metal bracket mounting screws, re-position the bracket utilizing its slotted holes, tighten and re-assemble. It may be necessary to replace the silicone sealant after this adjustment is made.

NOTE: It may be necessary to make several high speed runs to adjust transducer either UP/DOWN or to re-adjust the angle to achieve optimum results.

Step 7

CABLE CLAMPS- Install cable clamps as necessary by drilling a $\frac{1}{8}$ " dia. hole for the # 8 screw supplied.

2. INSIDE HULL MOUNTING PROCEDURE

Warning: In order to achieve proper results with this type installation, it is important that the transducer be mounted by someone familiar with the use of two part epoxy adhesives. For this reason, Techsonic Industries, Inc. will not be responsible for any damage due to the mounting of your transducer in this manner.

NOTE: An Epoxy Kit (Part N. EPK) is available from Humminbird. This Epoxy Kit has been formulated for Inside Hull Transducer Installation.

1. Select as flat an area as possible near the aft end and center of boat where the hull is thin and not double. If the bottom has a runner down the center of boat, select an area to one side of the runner, but as close to the runner as possible.
2. Clean the inside of the boat with lacquer thinner in the area transducer is to be mounted. Outside of boat in this area should also be cleaned. (Not with lacquer thinner).
3. Put approximately one inch of water in the bottom of the boat.
4. Put transducer in the water. The bottom of the transducer should be in a flat area and should be in good contact with the bottom of the boat.
5. Operate the LCR with the boat operating at high speed. The transducer may have to be moved in order to find an area where satisfactory operation is observed.
6. When an area is found that produces satisfactory operation, mark the location of the transducer.

7. Remove the water and transducer and clean the marked area and the bottom of the transducer thoroughly.
8. Using the Humminbird Epoxy Kit or equivalent, mix an ample amount of epoxy without causing it to bubble and pour it in the area the transducer is to be mounted. The puddle should be larger than the bottom of the transducer.
9. Coat the bottom of the transducer with epoxy, then put it in the center of the puddle and push down on the transducer while moving it around in a circular motion. This forces out any air bubbles that may be trapped between the bottom of the transducer and the hull of the boat.
10. Let epoxy cure then the transducer is ready to operate. No water is now required in the bottom of the boat and gas and oil that is spilled inside of the boat will not degrade performance as it will if the transducer is placed only in water.
CAUTION: Do not use the silicone seal or any soft adhesive to bond the transducer to the hull. This will reduce the sensitivity of the unit.

CAUTIONS

1. Occasionally the "eye" of your transducer may become dirty from storage or from contact with oils present in boats or marina environments. (Oil will cause the "eye" to lose the intimate contact with the water which is necessary for efficient operation.) The "eye" may be cleaned with liquid detergent.
2. Improper installation of the transducer can alter the efficiency and accuracy of the entire system.
3. If your boat or transducer is out of the water for a period of time, it may take a short period of time for the transducer to become thoroughly "wetted" when returned to the water. Also, re-entry may cause turbulence, which will create air bubbles in the "eye" of the transducer. The bubbles will disappear in a short time or can be removed by rubbing the transducer "eye" with your fingers while the transducer is in the water.
4. If your instrument should fail to function, be sure to check all the electrical connections before removing the transducer or calling a serviceman.
5. Inspect your transducer cable and make sure that it has not been cut or damaged to the point where it will affect the performance of the transducer. A slight nick or cut, exposing the outer cable, can be repaired by wrapping with electrical tape. A transducer can be damaged if the inner cable and outer cable are allowed to make contact. Such a problem can sometimes be corrected by properly splicing the coaxial cable. This should only be attempted by a qualified service technician.
6. If your LCR is not working properly and you suspect the problem might be in your transducer, we would recommend you borrow a unit from a friend and try it on your boat. If the symptoms are the same, you can almost be certain that the problem is in the transducer.

INSTALLING THE LCR

The LCR should be mounted on a flat, solid surface for maximum stability. The low profile swivel mount has four holes drilled in the base. It is recommended that all four holes be used.

Position the swivel base and drill four ¼" diameter holes. Note: The LCR hole pattern is the same as for all Humminbird flasher units. Use hardware provided to mount this base to the boat.

Next place the gimbal bracket on the swivel base and attach with four small machine screws, provided.

Place the LCR in the gimbal mount and make certain the rubber washers provided are placed between the unit and the gimbal bracket. Important: Note which side of the gimbal faces forward. (Slots on gimbal bracket go towards rear). Also, rubber washer must be located between the unit and the gimbal bracket.

Install the mounting knobs and tighten snugly. The unit can now be swiveled and tilted to any desired position.

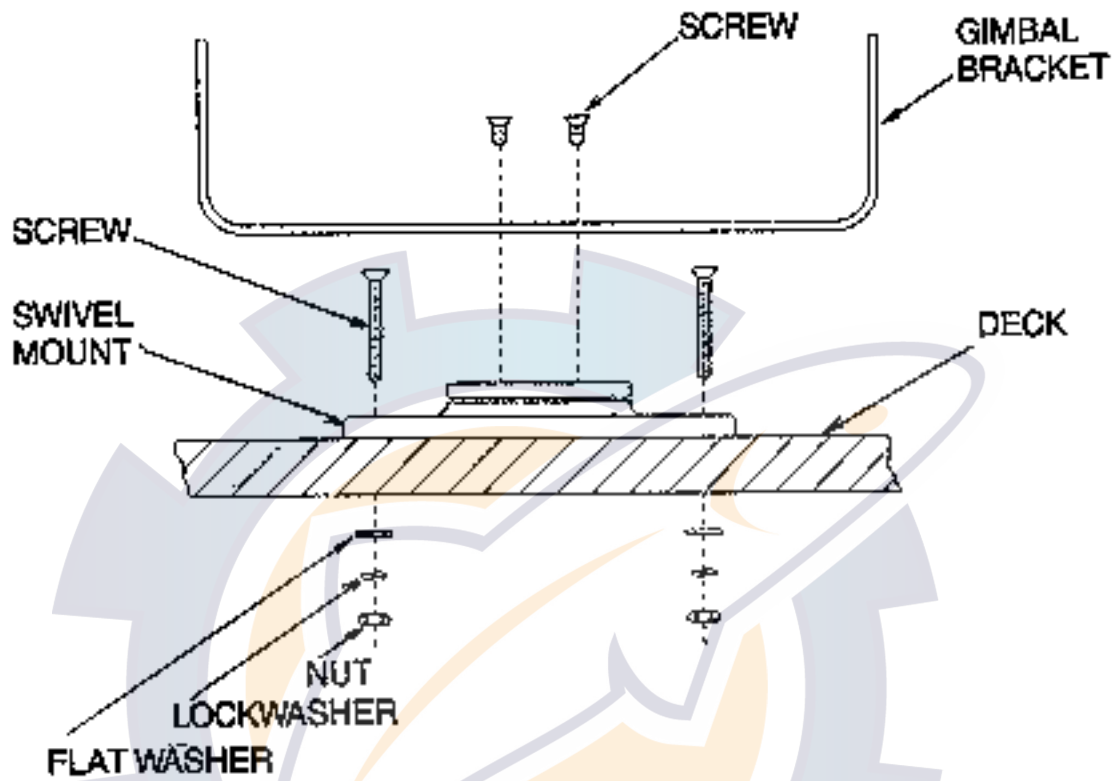


FIGURE 9

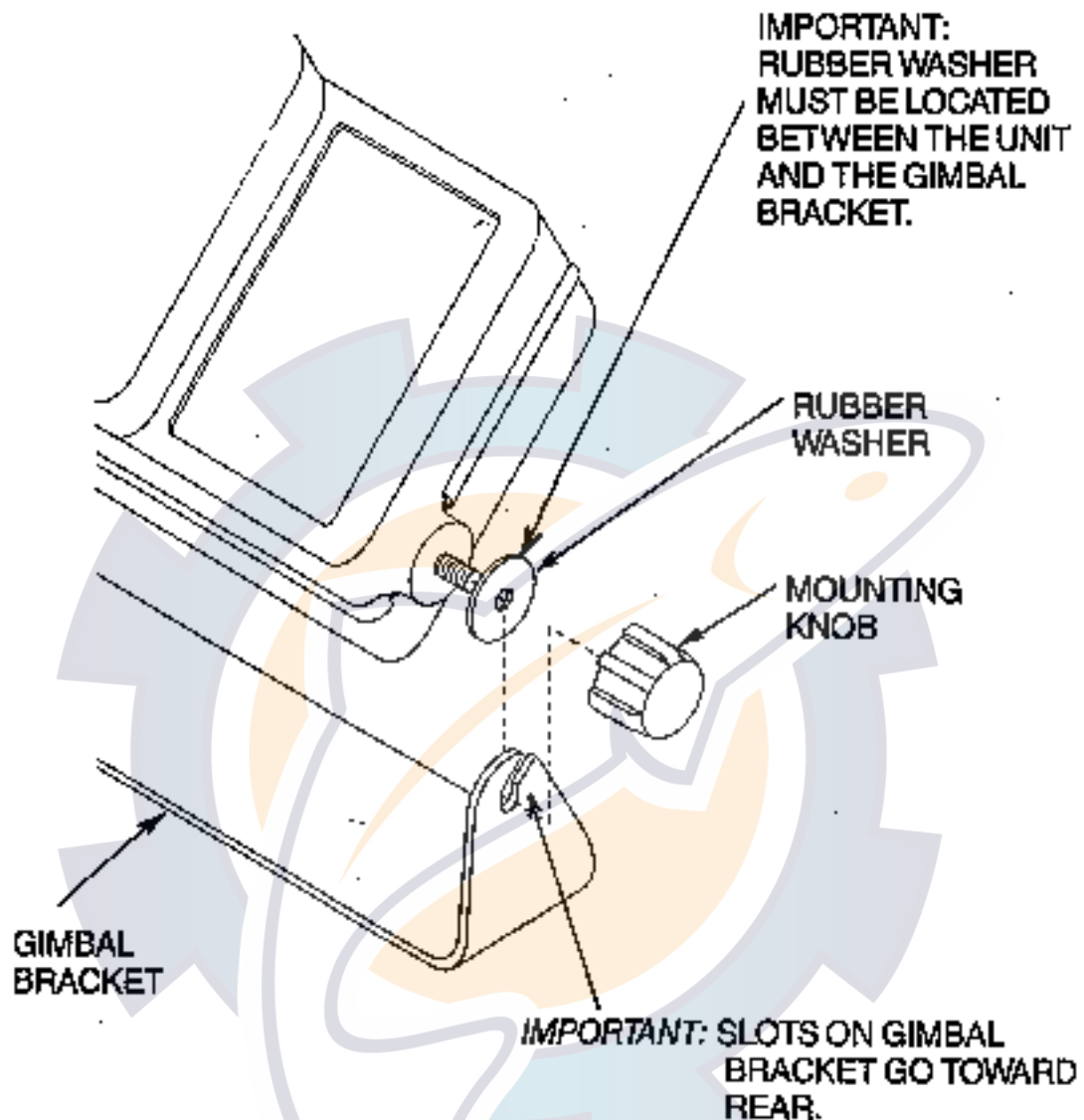


FIGURE 10

OTHER MOUNTING OPTIONS

1. The LCR gimbal bracket can also be mounted on the SM-4, quick disconnect swivel mount.
2. The LCR gimbal bracket can also be mounted directly to the dash without the swivel mount, however, this method is not recommended since the unit cannot be rotated.

INSTALLING THE CABLES

Your LCR comes equipped with Humminbird's new Angle-Lock power and transducer connectors. The power connector is identified with the letter P on the back of the plug.

It plugs into the outlet on the back of the unit marked "Power". The transducer connector is identified with the letter T and plugs into the outlet on the back of the unit marked "Transducer".

Note: An adapter (AD-4) is available to allow use of an old waterproof (BNC) transducer with the LCR, but be sure that the transducer is a 16-degree. A 32-degree transducer cannot be used.

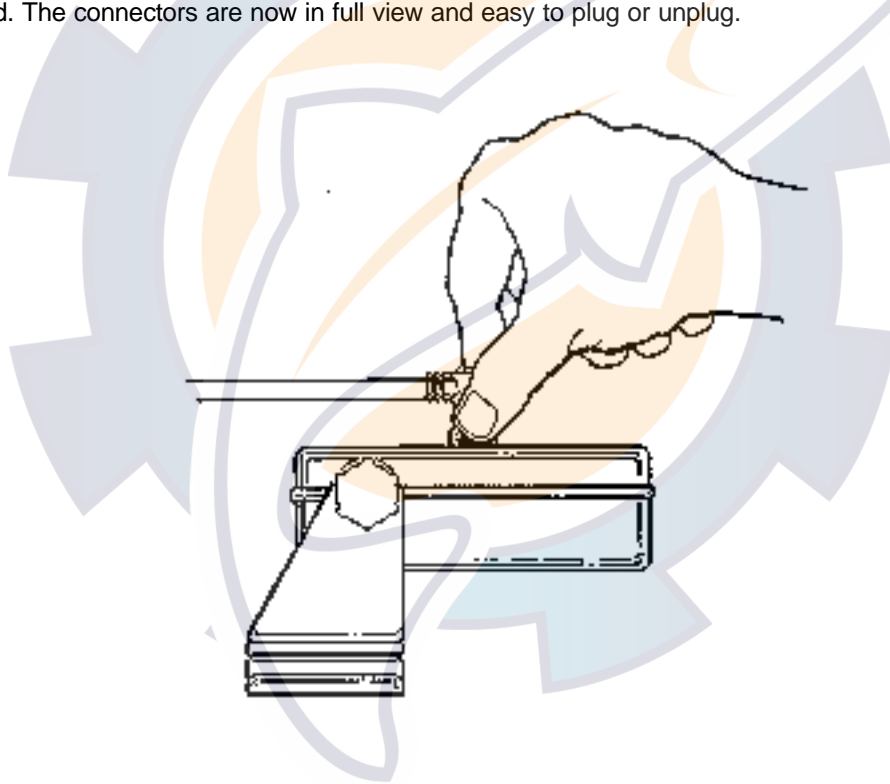
A 1 1/8" hole must be drilled to pull through the transducer connector. After drilling the hole, pull the transducer connector up through the hole. If you are installing two units, both transducer connectors can be pulled through this 1 1/8" inch hole. Next, push the power cable wires down through the hole. A hole cover has been provided which will dress and hold the wires. Install the hole cover after determining the necessary wire length from the hole.

The power cable has a red lead to the positive (+) post and the black lead to the negative (-) post. Install a 1 amp fuse between the red cable and positive post of your 12-volt battery.

If a fuse panel is available, we recommend wiring the power cable into the fuse panel. Note: The LCR must be fused separately from any other accessory.

Your Angle-Lock connectors can only be plugged in one way. Position the connector so the letter P or T can be read and the 90 degree bend is pointed downward. Push the connector in as far as it will go. Turn the positive locking ring as far as it will go clockwise until you feel it lock. Locking ring as far as it will go clockwise until you feel it lock. Your connector is now locked into place.

Note: For easy access to the connectors, simply loosen the mounting knobs and tilt your LCR forward. The connectors are now in full view and easy to plug or unplug.



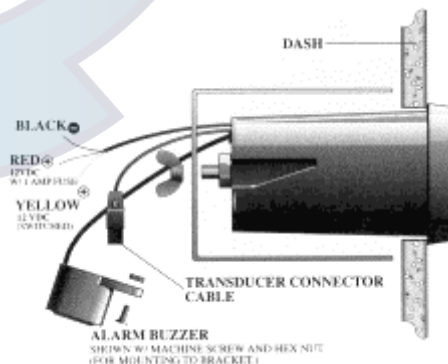
Installing the HDR 200

Before mounting the HDR 200, gather the parts you need: HDR 200, mounting hardware kit, and transducer cable. If the transducer cable is not long enough for your installation, see "Accessories" earlier in this manual for information on the EC-6 10' extension.

- The mounting surface should be adequately supported to protect the HDR 200 from excess wave shock and vibration.
- The mounting area should allow at least 2" clearance at the back, sides, and top of the unit for connection, air flow, and ease of removal.
- Any VHF radio you have may incur some degree of interference with the depth sounder. Humminbird depth sounders are designed to minimize this interference although it is best to route the transducer cable and antenna cable as far away from each other as possible- for example, on opposite sides of the boat.

After you have determined the best location for your HDR 200, proceed with the instructions on the following page.

1. Locate an area on the dash or panel which is visible to the boat operator and free from obstructions such as the throttle, steering mechanism or other gauges. The panel should be sufficiently sturdy to protect the HDR 200 from excessive shock. The maximum recommended panel thickness is $\frac{3}{4}$ ", although thicker panels may be accommodated by modifying the 'U' bracket.
2. Mark the desired location and drill a pilot hole.
3. Drill a 2-1/8" diameter hole using a hole saw and hand drill. Since this is a standard hole size, hole saws are readily available for rental or purchase, or any marine service shop can handle this task.
4. Insert the HDR 200 from the front of the panel.
5. From the rear of the panel, install the 'U' bracket and wingnut as illustrated, ensuring the face of the HDR200 is rotated upright.
6. If the panel into which you are mounting the unit is greater than $\frac{1}{4}$ " thick, the 'U' bracket at the score lines to reduce its length. It is a good idea to shorten the bracket gradually (one tab at a time).
7. Tighten the wing nut to secure the installation.
8. The power cable can be wired to any 12 VDC power source, but wiring directly to the boat's fuse panel is most desirable. Connect the black lead to the negative terminal and the red lead to 12 VDC positive. Use a 1-amp fuse in the fuse panel or if wiring directly to the battery, use an in-line fuse holder with a 1 amp fuse. **Do not connect the red lead to the power source without a fuse.** The yellow lead turns the HDR 200 "on". Connect the yellow lead to a 12 VDC positive source that only receives power when the boat's ignition is on. Connected in this fashion, the HDR 200 will "power-up" whenever the boat's ignition is turned on. No fuse is necessary on the yellow lead. If your boat does not have a switchable electrical system, you must wire the yellow lead through a separate switch, then directly to the power source.



Section 3: Testing and Using

After installing your HDR 200, transducer, and cables, you should test the installation. Testing should be performed in the water, since that is the only way to check your transducer's performance. When the boat ignition is turned on the HDR 200 will perform a self-test and then

begin transmitting, and automatically display the digital depth. (If the HDR 200 is wired to a switch other than the ignition switch, turn that switch on.)

Increase your boat speed to ensure that you get a continuous bottom reading as the boat moves. Your HDR 200 and its transducer are designed to operate at up to 75 mph. However, use caution when operating any boat at high speed.

If the HDR 200 performs well at idle or slow speeds, but the display is not continuous at higher speeds, the transducer is not installed properly. Air bubbles or turbulence from the boat hull are passing across the transducer face, blocking the transmitted signal. By following the instruction in "Mounting the Transducer," you can make simple adjustments that should fix the problem.

NOTE: If the other problems occur, see "Troubleshooting" later in this manual for tips from the Humminbird engineers. If you don't find the solution there, call our toll-free Customer Service Hotline.

Using the Depth Alarm

The HDR 200 offers a depth alarm that can provide you with an audible alert when the boat is in shallow water. To turn on the depth alarm, press and release the DEPTH ALARM button. (You'll hear a chirp and see the alarm symbol, which indicates the alarm is enabled). Also the depth for which the alarm is set will be temporarily displayed as a reminder. If you wish to reset the alarm depth, press the button and hold it down. The alarm setting will be displayed and will increase in 1' increments from 3' to 20' and then back to 3' again. Hold the button down until the depth you desire appears, then release the button. Ensure that the alarm symbol is on and now the alarm will sound whenever the depth of water beneath the boat is sensed to be equal- to or less than the selected alarm depth.



Alarm "ON" Annunciator

When you want to turn the alarm off, press and release the DEPTH ALARM button a second time.

Section 4: Maintenance

Your Humminbird HDR 200 is designed to give you years of trouble-free operation with virtually no maintenance. Follow the simple procedures below to ensure that your HDR 200 continues to deliver top performance.

If the unit comes in contact with salt spray, simply wipe the affected surfaces with a cloth dampened in fresh water.

When cleaning the LCD screen, use a chamois and non-abrasive cleaner such as windex. Do not wipe while dirt or grit is on the screen. Be careful to avoid scratching the screen.

The transducer face may become dirty from storage or contact with marina environment oil. Oil will cause the face to lose the water contact it needs to maintain efficient operation. Simply clean the face with liquid detergent.

If your boat is out of the water for a long time, it may take a while for the transducer to become thoroughly "wetted" when returned to the water. Also, the turbulence of re-entry may cause air bubbles to form on the transducer face. The bubbles will quickly disappear, or can be removed by rubbing the transducer with the fingers while the transducer is in the water.

Never leave the HDR 200 in closed car or trunk, especially in extreme temperatures.

Do not attempt to repair HDR 200 yourself. Repairs should be performed only by authorized Humminbird technicians.

